TBC-3

DIGITAL TIME BASE CORRECTOR

FOR RELIABLE TIME BASE STABILITY

AMPEX

TBC-3

CONTINUING A TRADITION OF QUALITY AND RELIABILITY

The TBC-3 continues in the Ampex tradition of excellent time base correction, and has earned a reputation for reliability and consistency.

When used with the Ampex VPR series of VTR's, the TBC-3's unique error processing circuitry delivers broadcastable, transition-free slow motion playback throughout the range of the VPR model.

Flexibility of Time Base Correction

The TBC-3 has the most flexible time base correction system available. Not only does it cope with the wildest of gyroscopic errors from small format ENG portable recorders, but the TBC-3 also handles the subtle, complex color velocity errors which are invariably present in all videotape recorders.

Unmatched Integrity

With the TBC-3, you will never have to worry about meeting broadcast standards. The built-in color sync generator has been designed for SCH phase stabilized operation. Picture centering shifts due to TBC "cycle hopping" are a thing of the past. The TBC-3 automatically detects correct vertical centering and locks it in place.

Both horizontal and vertical blanking widths are fully adjustable so that picture cropping can be established in the camera where it belongs instead of at the TBC output.

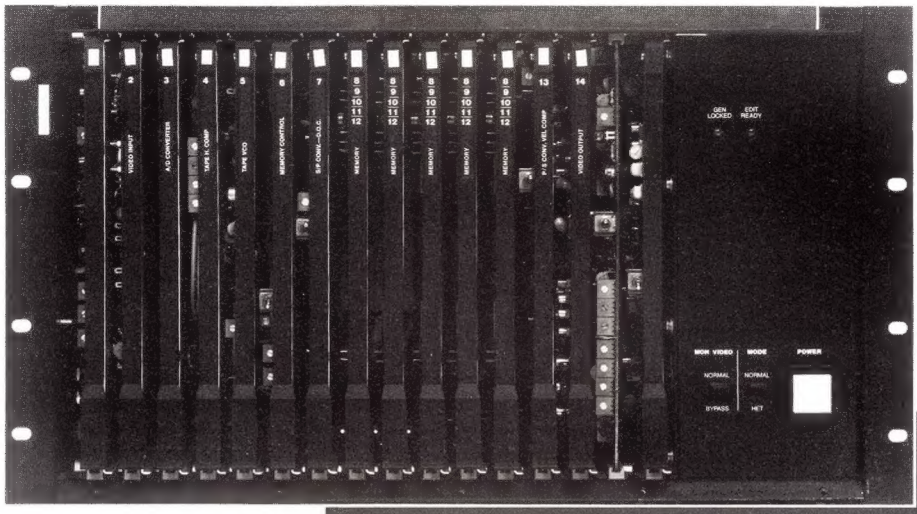
If your application requires a stand alone unit for one of the popular ½-inch or ¾-inch heterodyne recorders, the TBC-3 has a convenient front panel switch to enable the optional, heterodyne color processing circuitry.

The TBC-3 can even time share playback between the VPR and your ¾ inch heterodyne recorder, thereby expanding the utilization of your equipment.

The most advanced LSI circuitry has been incorporated in the A to D converter of the TBC-3. Not only does it reduce the size and complexity of the A/D conversion circuitry, but precise semiconductor matching afforded by single chip construction gives you exceptional freedom from drift and unexcelled transparency in signal processing.

FEATURES

- Interfaces with Ampex VPR-2B, VPR-80, and VPR-3 videotape recorders as well as other non-segmented helical scan VTR's.
- The TBC-3 makes possible color pictures in shuttle up to 10 times normal play speed and monochrome pictures up to 50 times normal speed both in forward and reverse. (Top speed is dependent on VTR model used)
- TBC-3 permits continuously variable playback speed from 1X reverse to 3X forward. (Slow motion range is dependent on VTR model used)
- Sixteen or twenty line memory sizes available in PAL/SECAM
- Twelve or sixteen line memory sizes available in NTSC
- Color SCH phase stabilized sync generator
- Automatic vertical centering for stable picture centering
- Fully adjustable sync and blanking controls
- Single board analog-to-digital converter for exceptional linearity and freedom from drift
- Line by line velocity compensator with second order correction of complex color phase errors to boost performance during multi-generation recording sessions.
- Dropout compensator which detects off-tape signal losses and replaces the missing information with video from a previous horizontal line
- Heterodyne color processor to convert small format VTR signal to a direct color signal for broadcast stable time base correction
- Full remote control of all control panel functions is possible



It's Easy to Use and Simple to Service

The TBC-3 is ready to work as soon as you receive it. Just hook it up, make the usual system timing adjustments and forget it. The TBC-3 is designed for long-term, drift-free operation. And if servicing is ever required, the built-in diagnostics and maintenance accessibility make servicing easy.

All printed wiring assemblies can be pulled from the front, and the power supply swings out from the side. LED functional indicators on the PWA's themselves are supplemented by LED's on the front panel for Gen Locked, Edit Ready, Video Low and Video Overload. All relevant test points are accessible at the front of the PWA's and an extender card is provided as standard equipment.

Configurations

The TBC-3 is available in VPR console mount, rack mount and portable cabinet configurations.

TBC-3 SPECIFICATIONS

GENERAL	NTSC 525/60	PAL/SECAM 625/50
Digital Sampling Frequency:	10.7 MHz (3 x Fsc)	13.3 MHz (3 x Fsc)
Quantizing Levels:	256 levels (8 bits)	256 levels (8 bits)
Type of Correction:	Dynamic correction™ utilizes both line-by-line and averaging signal processing techniques. Choice of automatic vertical centering or floating window operation.	
Size: Standard 11 in (279 mm) High Rack Case	19 in (483 mm) W x 11 in (279 mm) H x 18 in (457 mm) D	19 in (483 mm) W x 11 in (279 mm) H x 18 in 457 mm) D
Weight:	80 lbs. (36.29 kg)	80 lbs. (36.29 kg)
Power Requirements:	less than 250 watts 100/120 VAC ±10% 60 Hz	less than 300 watts 220/240 VAC ±10% 50 Hz
Operating Environment: Temperature: Humidity:	 0° to 45°C 10% to 90% RH (Non Condensing)	 0° to 45°C 10% to 90% RH (Non Condensing)
VIDEO SIGNAL PERFORMANCE		
Bandwidth:	Flat (±.25 dB) to 4.2 MHz	Flat (±.25 dB) to 5.5 MHz
Signal-To-Noise Ratio[1]:	56 dB	56 dB
Differential Gain[2]:	2%	3%
Differential Phase[2]:	2°	3°
Transient Response (2T Pulse):	1% K Factor	1% K Factor
TIME BASE PERFORMANCE		
Correction Range (Window):	Greater than 10 horizontal lines	Greater than 14 horizontal lines
Memory Size:	12 or 16 horizontal lines	16 or 20 horizontal lines
Output Jitter[3]:		
Monochrome	±10 nsec	±20 nsec
	NTSC	*PAL* *SECAM*
Color	±2.5 nsec	±3 nsec ±20 nsec
INPUT SIGNALS		
Tape Video:	1V ± 2 dBComposite Video (75Ω)	
Reference Video:	1V ± 2 dB Composite Video or Color Black (Loop thru or 75Ω)	
Dropout Compensator: (Optional)	0.5 to 4 Volts R.F. from VTR or TTL Dropout Pulse (Dropout = Low)	
OUTPUT SIGNALS		
Video Output (3):	(a) 1V Composite (75Ω) (b) 1V Composite or Non Composite (75Ω) (c) 1V Composite (75Ω) Monitor Output Switchable Normal/Bypass	
Sync Coherent S.C.:	2V P-P Sine Wave at S.C. Frequency (NTSC only)	
VTR Advanced Reference:	Composite Sync @ Color Video Level (75Ω) or TTL Level or Vertical Drive @ TTL Level (Jumper Selectable)	

Note 1: VTR-TBC system signal-to-noise ratio is determined primarily by VTR performance, e.g., 47 dB VTR S/N = 46.5 dB System S/N. This gives an equivalent TBC S/N ratio of 56 dB.

Note 2: Measured using a non-synchronous, subcarrier, modulated ramp with subcarrier amplitude equal to that of the color burst.

Note 3: Residual output error is directly dependent on the S/N of the input signal. Specification based on an input S/N of 47 dB.

Ampex reserves the right to make product and specification changes at any time without notice.

AMPEX Ampex Corporation, Audio-Video Systems Division

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